

MINIMUM CRITERIA DETERMINATION CHECKLIST

**TIP Project No.**            BR-0014  
**W.B.S. Project No.**      67014.1.1

**Project Location:** Bridge No. 250025 over Beaver Dam Creek on NC 242 in Cumberland County

**Project Description:** The purpose of this project is to replace Cumberland County Bridge No. 250025 on NC 242 over Beaver Dam Creek. Bridge No. 250025 is 76 feet long. The replacement structure will be a bridge approximately 110 feet long providing a minimum 33 feet clear deck width. The bridge will include two 12-foot lanes and 4-foot 6 inch offsets. The bridge length is based on preliminary design information and is set by hydraulic requirements. The roadway grade of the new structure will be raised approximately 2-foot to match the existing low chord elevation.

The approach roadway will extend approximately 640 feet from the south end of the new bridge and 690 feet from the north end of the new bridge. The approaches will be widened to include a 24-foot pavement width providing two 12-foot lanes. Eight-foot shoulders will be provided on each side (11-foot shoulders where guardrail is included) with 2' paved shoulders. The roadway will be designed as a Major Collector Route with a 60 mile per hour design speed.

Traffic will be detoured off-site during construction (see Figure 1).

**Purpose and Need:** NCDOT Bridge Management Unit records indicate Bridge No. 250025 has a sufficiency rating of 50.19 out of a possible 100 for a new structure.

The superstructure and substructure of Bridge No. 250025 have timber elements that are sixty-seven years old. Timber components have a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of a timber structure is generally practical only when a few elements are damaged or prematurely deteriorated. However, past a certain degree of deterioration, most timber elements become impractical to maintain and upon eligibility are programmed for replacement. Timber components of Bridge No. 250025 are experiencing an increasing degree of deterioration that can no longer be addressed by reasonable maintenance activities, therefore the bridge is approaching the end of its useful life.

**Anticipated Permit or Consultation Requirements:**

A Section 404 Nationwide Permit 3 or 14 will likely be required for impacts to “Waters of the United States” resulting from this project. A corresponding NCDWR Section 401 Water Quality General Certification would be issued with the Section 404 Permit. The USACE holds the final discretion as to what permit will be required to authorize project construction.

**Special Project Information:**

**Environmental Commitments:** Greensheet Commitments are located at the end of the checklist.

**Estimated Costs:**

The estimated costs are as follows:

R/W: \$ 5,750  
Const: \$ 1,650,000  
Total: \$ 1,655,750

**Estimated Traffic:**

2019 (Let) 1,500 vpd  
2040 (Design) 2,200 vpd  
TTST 8%  
Dual 4%

**Accidents:** Traffic Engineering has evaluated a recent ten year period and found four accidents occurring in the vicinity of the project.

**Design Exceptions:** There are no anticipated design exceptions for this project.

**Pedestrian and Bicycle Accommodations:** This portion of NC 242 is not designated as a bicycle route nor is it listed in the STIP as a bicycle project. No temporary bicycle or pedestrian accommodations will be provided.

**Bridge Demolition:** Bridge No. 250025 has a concrete deck with steel I-beams and reinforced concrete caps on timber piles. Based on standard demolition practices, it should be possible to remove with no resulting debris in the water. There has been some priority maintenance performed on the steel girders of the bridge however, that is not considered a permanent solution.

**Alternatives Discussion:**

**No Build** – The no build alternative would result in eventually closing the road which is unacceptable given the volume of traffic served by NC 242.

**Rehabilitation** – The bridge was constructed in 1951 and the timber materials within the bridge are reaching the end of their useful life. Rehabilitation would require replacing the timber components which would constitute effectively replacing the bridge.

**Onsite Detour** – An onsite detour was not evaluated due to the presence of an acceptable offsite detour.

**Staged Construction** – Staged construction was not considered because of the availability of an acceptable offsite detour.

**New Alignment** – Given that the alignment for NC 242 is acceptable, a new alignment was not considered as an alternative.

**Offsite Detour** – Bridge No. 250025 will be replaced on the existing alignment. Traffic will be detoured offsite (see Figure 1) during the construction period. The offsite detour for this project

will include SR 2036, SR 2037, and NC 210 and is 4.08 miles in length. Cumberland County Schools Transportation and Cumberland County Emergency Services will be notified prior to road closure.

**Public Involvement:**

A landowner notification letter was sent to all property owners affected directly by this project. Property owners were invited to comment. No comments have been received to date.

**PART A: MINIMUM CRITERIA**

***Item 1 to be completed by the Engineer.***

- |  | <b>YES</b>                          | <b>NO</b>                |
|--|-------------------------------------|--------------------------|
| 1. Is the proposed project listed as a type and class of activity allowed under the Minimum Criteria Rule in which environmental documentation is <u>not</u> required? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

If the answer to number 1 is “no”, then the project does not qualify as a minimum criteria project. A state environmental assessment is required.

If yes, under which category?      2

If either category #8, #12(i) or #15 is used complete Part D of this checklist.

**PART B: MINIMUM CRITERIA EXCEPTIONS**

***Items 2 – 4 to be completed by the Engineer.***

- |   | <b>YES</b>               | <b>NO</b>                           |
|---|--------------------------|-------------------------------------|
| 2. Could the proposed activity cause significant changes in land use concentrations that would be expected to create adverse air quality impacts?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Will the proposed activity have secondary impacts or cumulative impacts that may result in a significant adverse impact to human health or the environment?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Is the proposed activity of such an unusual nature or does the proposed activity have such widespread implications, that an uncommon concern for its environmental effects has been expressed to the Department? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

***Item 5-8 to be completed by Division Environmental Officer.***

- |  |                          |                                     |
|--|--------------------------|-------------------------------------|
| 5. Does the proposed activity have a significant adverse effect on wetlands; surface waters such as rivers, streams, and estuaries; parklands; prime or unique agricultural lands; or areas of recognized scenic, recreational, archaeological, or historical value? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Will the proposed activity endanger the existence of a species on the   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Department of Interior's threatened and endangered species list?

7. Could the proposed activity cause significant changes in land use concentrations that would be expected to create adverse water quality or ground water impacts?

- YES**      **NO**
8. Is the proposed activity expected to have a significant adverse effect on long-term recreational benefits or shellfish, finfish, wildlife, or their natural habitats

If any questions 2 through 8 are answered “yes”, the proposed project may not qualify as a Minimum Criteria project. A state environmental assessment (EA) may be required. For assistance, contact:

Manager, Environmental Analysis Unit  
 1598 Mail Service Center  
 Raleigh, NC 27699-1598  
 (919) 707 – 6000  
 Fax: (919) 212-5785

**PART C: COMPLIANCE WITH STATE AND FEDERAL REGULATIONS**

- Items 9- 12 to be completed by Division Environmental Officer.***      **YES**      **NO**
9. Is a federally protected threatened or endangered species, or its habitat, likely to be impacted by the proposed action?
10. Does the action require the placement of temporary or permanent fill in waters of the United States?
11. Does the project require the placement of a significant amount of fill in high quality or relatively rare wetland ecosystems, such as mountain bogs or pine savannahs?
12. Is the proposed action located in an Area of Environmental Concern, as defined in the coastal Area Management Act?

- Items 13 – 15 to be completed by the Engineer.***
13. Does the project require stream relocation or channel changes?

Cultural Resources

14. Will the project have an “effect” on a property or site listed on the National Register of Historic Places?
15. Will the proposed action require acquisition of additional right of way from publicly owned parkland or recreational areas?

Questions in Part “C” are designed to assist the Engineer and the Division Environmental Officer in determining whether a permit or consultation with a state or federal resource agency may be required. If any questions in Part “C” are answered “yes”, follow the appropriate permitting procedures prior to beginning project construction.

**PART D:( To be completed when either category #8, 12(i) or #15 of the rules are used.)**

***Items 16- 22 to be completed by Division Environmental Officer.***

- |  |                                       |
|--|---------------------------------------|
| 16. Project length:                                | <u><b>0.273 mi.</b></u>               |
| 17. Right of Way width:                            | <u><b>100 ft.</b></u>                 |
| 18. Project completion date:                       | <u><b>August 2021</b></u>             |
| 19. Total acres of newly disturbed ground surface: | <u><b>1.0 ac.</b></u>                 |
| 20. Total acres of wetland impacts:                | <u><b>0.21 ac.</b></u>                |
| 21. Total linear feet of stream impacts:           | <u><b>50 ft.</b></u>                  |
| 22. Project purpose:                               | <u><b>Replace Existing Bridge</b></u> |

If Part D of the checklist is completed, send a copy of the entire checklist document to:

David B. Harris, PE  
State Roadside Environmental Engineer  
Mail Service Center 1557  
Raleigh, NC 27699-1557  
(919) 707-2920  
Fax (919) 715-2554  
Email: davidharris@ncdot.gov

## **PART D**

### **Additional Documentation as Required from Sections B & C**

**Question 9: Michaux's sumac** - Suitable habitat for michaux's sumac is present in the study area. This habitat included sandy soils, open woods, or areas where disturbance has been provided in an open area. Maintained and disturbed portions of the study area were surveyed on September 7, 2018 and no michaux's sumac was observed. A review of the NCNHP records, updated July 2018, indicates no known occurrences within 1.0 mile of the study area. The biological conclusion is **No Effect**.

**Pondberry** - Suitable habitat for pondberry is present in the study area. This habitat included shaded areas and total sunlight where disturbance has occurred. Areas of habitat were surveyed on September 7, 2018 and no pondberry was observed. A review of the NCNHP records, updated July 2018, indicates no known occurrences within 1.0 mile of the study area. The biological conclusion is **No Effect**.

**Rough-leaved Loosestrife** - Suitable habitat for rough-leaved loosestrife is present in the study area. This habitat included areas where disturbance had occurred in an open area. Areas of habitat were surveyed on September 7, 2018 and no rough-leaved loosestrife was observed. A review of the NCNHP records, updated July 2018, indicates no known occurrences within 1.0 mile of the study area. The biological conclusion is **No Effect**.

The US Fish and Wildlife Service has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is **May Affect, Likely to Adversely Affect**. The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Cumberland County, where BR-0014 is located. This level of incidental take is authorized from the effective date of a final listing determination through April 30, 2020.

**Question 10:** The proposed project will require fill in waters at two locations along the project due to the proposed bridge replacement. The impacts are as follows: approximately 40 linear foot of impact to Beaver Dam Creek and approximately 0.21 acres of permanent fill in wetlands. The stream impacts are due to the rip rap that will be placed on the stream banks and 3:1 fill slopes are being utilized to minimize wetland impacts.

**Prepared By:**

3/27/2019

Date

DocuSigned by:

*Greg S. Purvis*

D1F0F7C256E3403

Greg S. Purvis, PE, Project Manager  
Wetherill Engineering



**Prepared For:** North Carolina Department of Transportation Structures Management Unit

**Reviewed By:**

3/27/2019

Date

DocuSigned by:

*Kevin Fischer*

ED13A18B90EC496

Kevin Fischer, PE Assistant State Structures Engineer – Program Management and Field Operations, Structures Management Unit  
North Carolina Department of Transportation

**PROJECT COMMITMENTS:**

**Cumberland County  
Bridge No. 250025 on NC 242  
Over Beaver Dam Creek  
W.B.S. No. 67014.1.1  
T.I.P. No. BR-0014**

**Division Six Construction, Resident Engineer's Office – Offsite Detour**

In order to have time to adequately reroute school busses, Cumberland County Schools will be contacted at (910) 678-2505 at least one month prior to road closure.

Cumberland County Emergency Services will be contacted at (910) 321-6736 at least one month prior to road closure to make the necessary temporary reassignments to primary response units.

**Hydraulic Unit – FEMA Coordination**

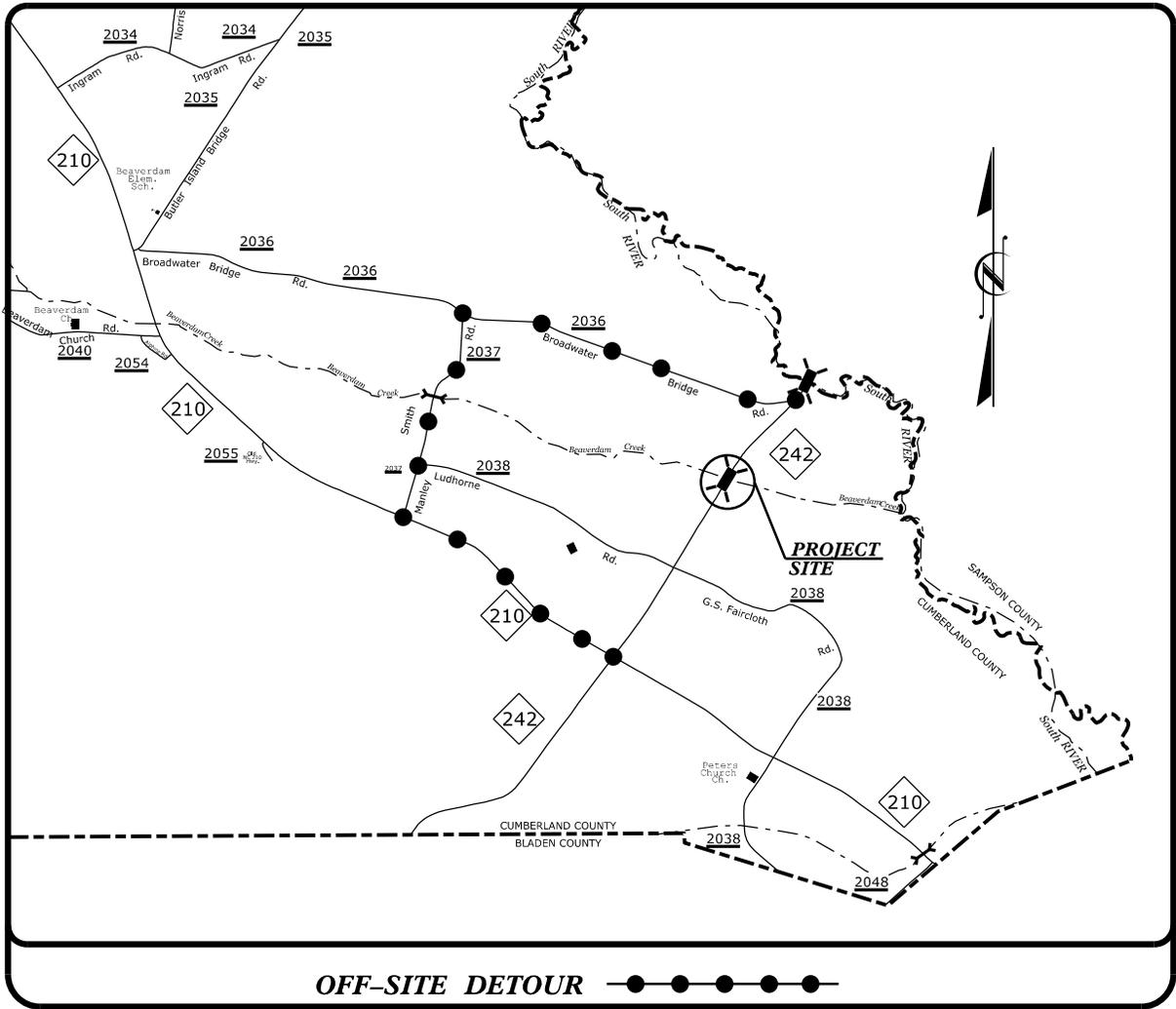
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

**Division Six Construction, Resident Engineer's Office -FEMA**

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

**Roadside Environmental Unit; Division Six Construction, Resident Engineer's Office –  
ORW Issues**

Since Beaver Dam Creek flows into the South River less than 1.0 mile downstream of the project, and this portion of the South River is classified as C;Sw,ORW:+, the sedimentation and erosion control plans shall adhere to the Design Standards in Sensitive Watersheds.



**BR-0014**  
**REPLACE BRIDGE NO. 250025**  
**OVER BEAVER DAM CREEK**  
**ON NC 242**

**CUMBERLAND COUNTY**

**WBS NO. 67014.1.1**

**NORTH CAROLINA**  
**DEPT. OF TRANSPORTATION**  
**DIVISION 6**

**VICINITY MAP - FIGURE 1**

See Sheet 1-A For Index of Sheets  
 See Sheet 1-B For Conventional Symbols  
 See Sheet 1C-1 TO 1C-2 For Survey Control Sheets

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**CUMBERLAND COUNTY**

LOCATION: BRIDGE NO. 250025 OVER BEAVER DAM CREEK  
 ON NC 242

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

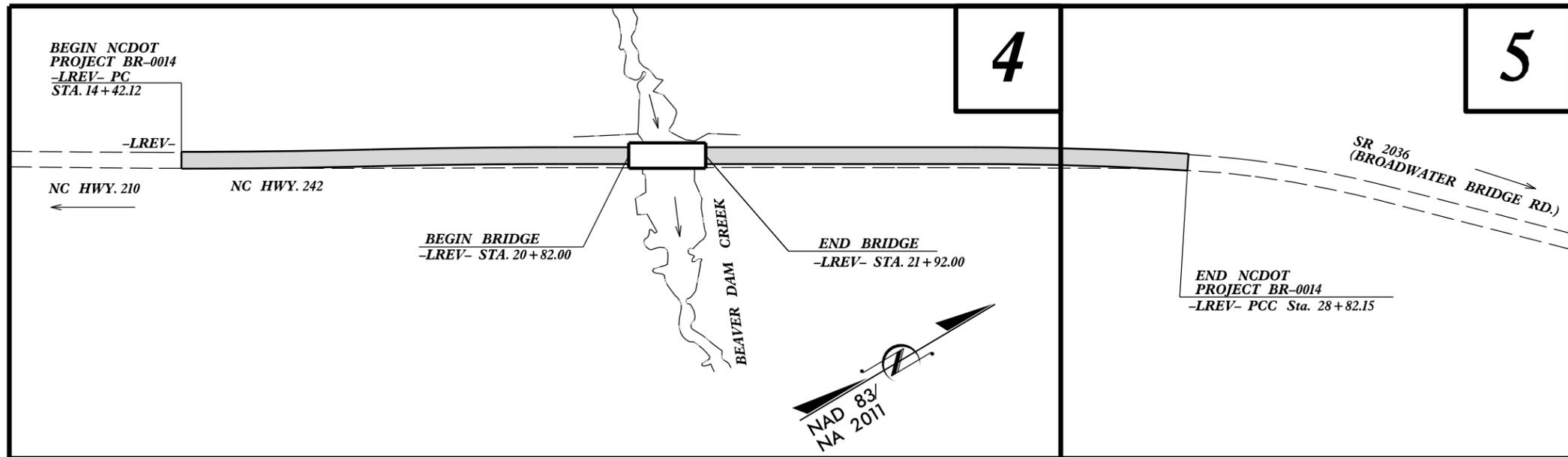
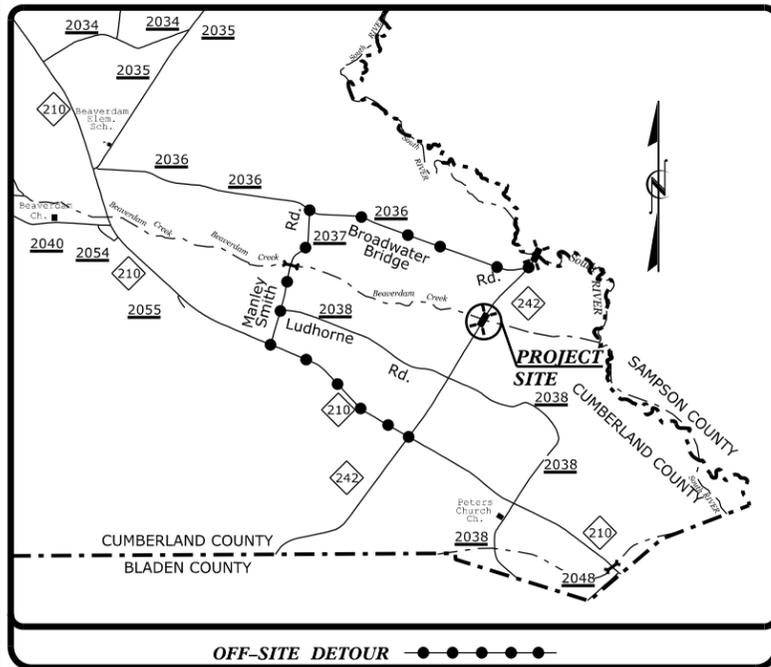
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0014	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67014.1.1		PE	
67014.2.1		RW, UTIL.	
67014.3.1		CONST.	

**WETHERILL ENGINEERING**  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

**BRIDGE #250025**

**65% PLANS**

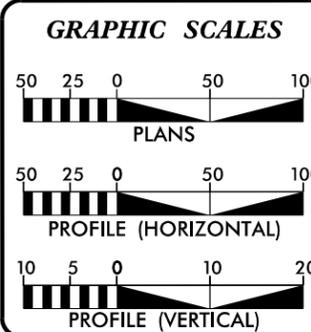


CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II MODIFIED.  
 THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

**PROJECT: BR-0014**

**CONTRACT:**



**DESIGN DATA**

ADT 2019 =	1,500
ADT 2040 =	2,200
K =	12 %
D =	55 %
T =	12 % *
V =	60 MPH

\* (TTST = 8% +  
 DUAL = 4%)  
 FUNC CLASS =  
 MAJOR COLLECTOR  
 REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT BR-0014 =	0.252 MILES
LENGTH STRUCTURE PROJECT BR-0014 =	0.021 MILES
<b>TOTAL LENGTH PROJECT BR-0014 =</b>	<b>0.273 MILES</b>

NCDOT CONTACT: DAVID STUTTS, PE  
 PROJECT ENGINEER - PEF/PROGRAM MGT.

Prepared for:  
**DIVISION OF HIGHWAYS**  
**STRUCTURES MANAGEMENT UNIT**  
 1000 BIRCH RIDGE DRIVE RALEIGH NC, 27610

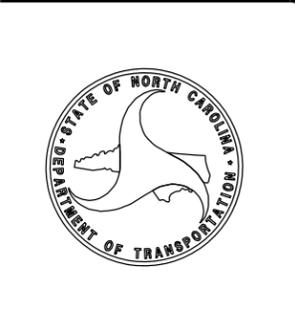
2018 STANDARD SPECIFICATIONS	<u>EDWARD G. WETHERILL, PE</u> PROJECT ENGINEER
RIGHT OF WAY DATE: MAY 21, 2019	
LETTING DATE: MAY 19, 2020	<u>GREG S. PURVIS, PE</u> PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

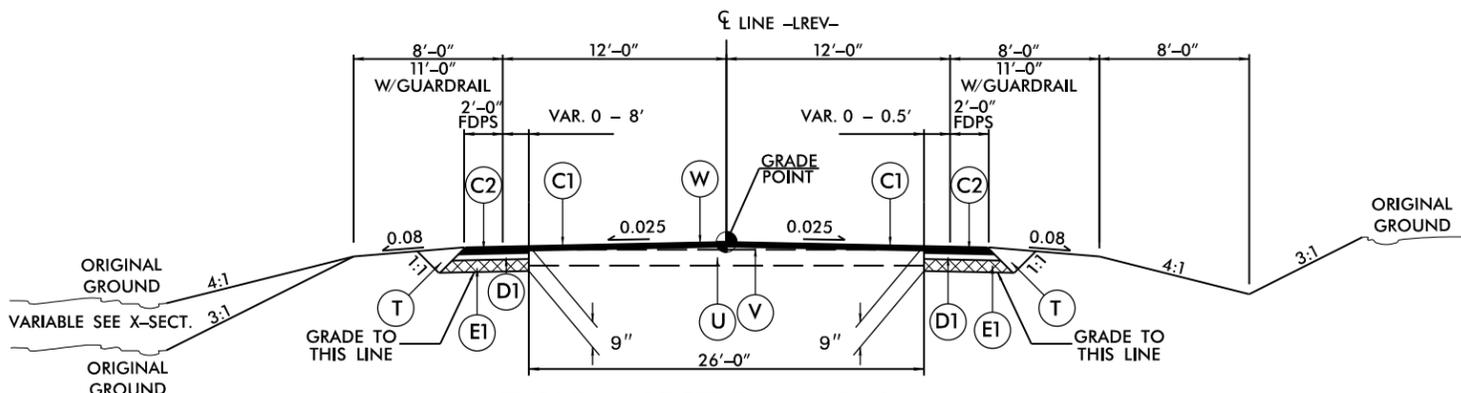


PROJECT REFERENCE NO. <b>BR-0014</b>	SHEET NO. <b>2A-1</b>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
	
<small>1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. E-0377 Bus: 919 851 8077 Fax: 919 851 8107</small>	
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>	

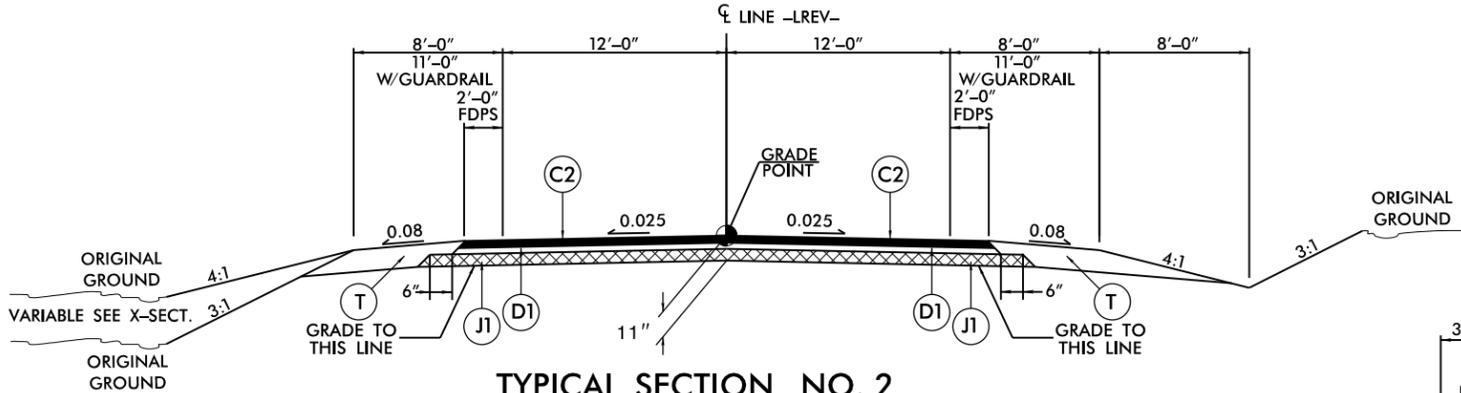
**BRIDGE #250025**

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. APPROX. 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

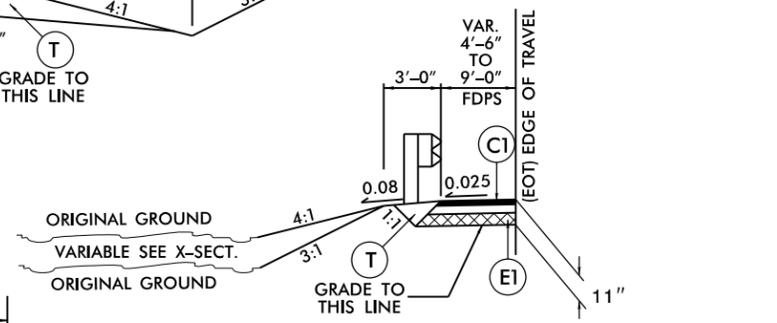
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



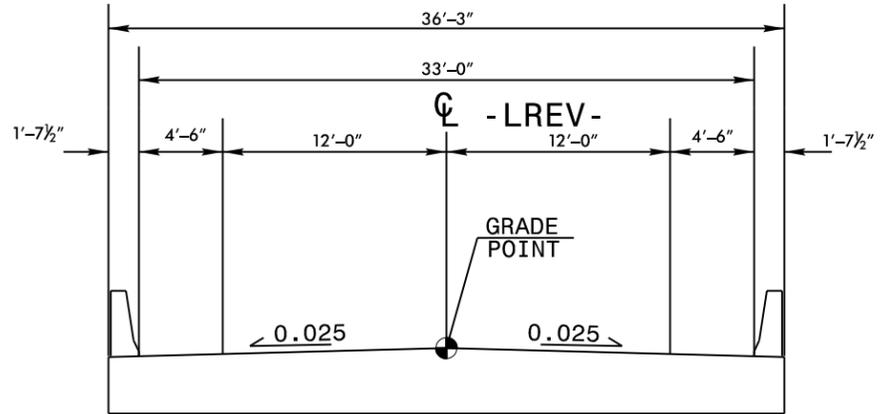
**TYPICAL SECTION NO. 1**  
USE TYPICAL SECTION NO. 1 AS FOLLOWS:  
-LREV- STA. 14+42.12 TO -LREV- STA. 18+25.00  
-LREV- STA. 25+00.00 TO -LREV- STA. 28+22.15



**TYPICAL SECTION NO. 2**  
USE TYPICAL SECTION NO. 2 AS FOLLOWS:  
-LREV- STA. 18+25.00 TO -LREV- STA. 20+82.00 (BEGIN BRIDGE)  
-LREV- STA. 21+92.00 (END BRIDGE) TO -LREV- STA. 25+00.00



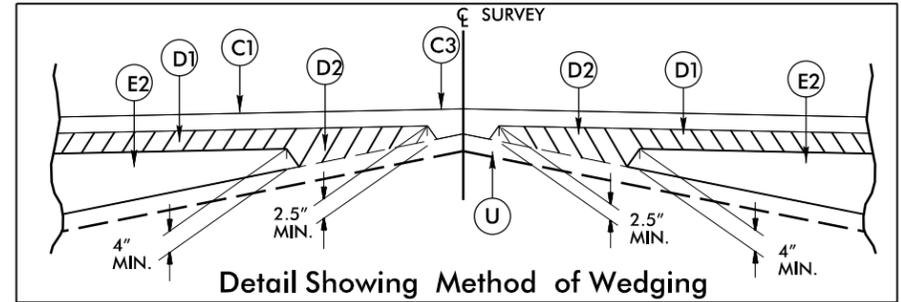
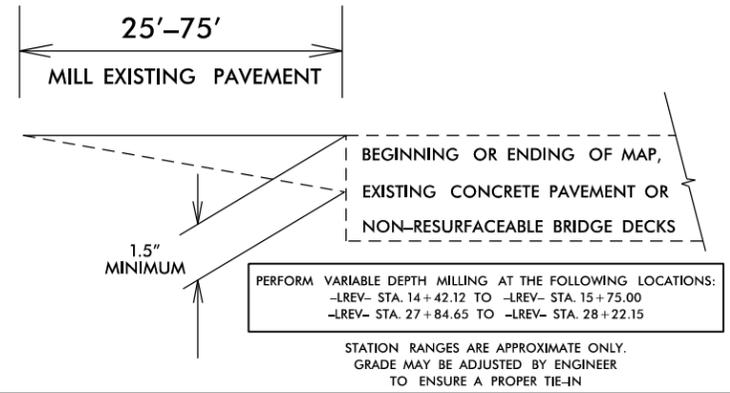
**SHOULDER DETAIL**  
USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:  
-LREV- STA. 17+82.00 TO -LREV- STA. 20+82.00 RT.  
-LREV- STA. 19+44.50 TO -LREV- STA. 20+82.00 LT.  
-LREV- STA. 21+92.00 TO -LREV- STA. 23+29.50 RT.  
-LREV- STA. 21+92.00 TO -LREV- STA. 24+92.00 LT.



**TYPICAL SECTION NO. 3 (BRIDGE)**  
USE TYPICAL SECTION NO. 3 AS FOLLOWS:  
-LREV- STA. 20+82.00 (BEGIN BRIDGE) TO -LREV- STA. 21+92.00 (END BRIDGE)

**MILLING AT PAVEMENT TIE-INS**

**NOTES TO CONTRACTOR**  
For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.  
Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.  
Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



**Detail Showing Method of Wedging**

3/1/2019 3:11:00 PM BR-0014\_RdJ\_tjpd.dgn

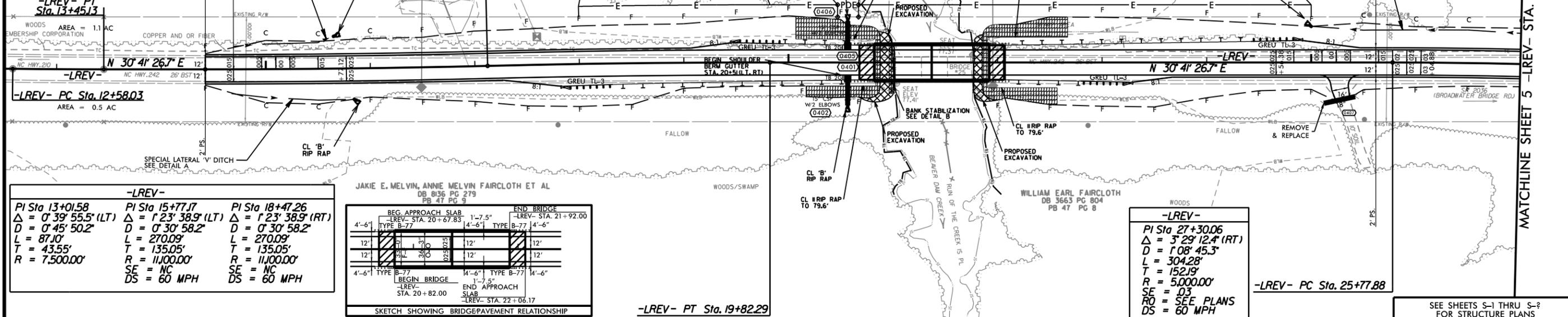


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Fax: 919 851 8107

PROJECT REFERENCE NO.	SHEET NO.
BR-0014	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

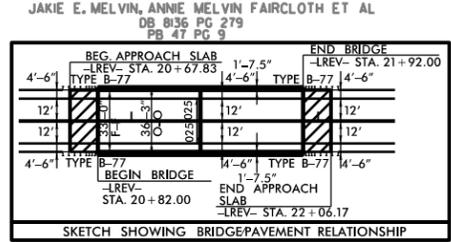
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**BEGIN NCDOT PROJECT BR-0014**  
-LREV- PC STA. 14+42.12  
-LREV- PT Sta. 13+45.13



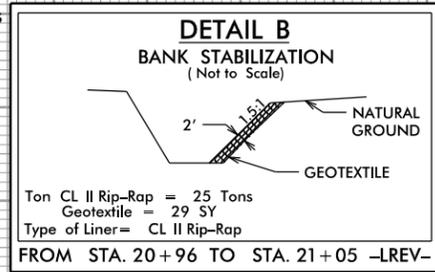
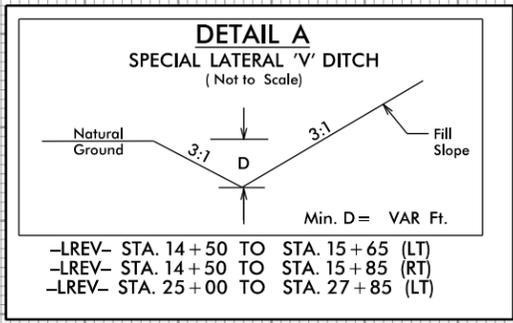
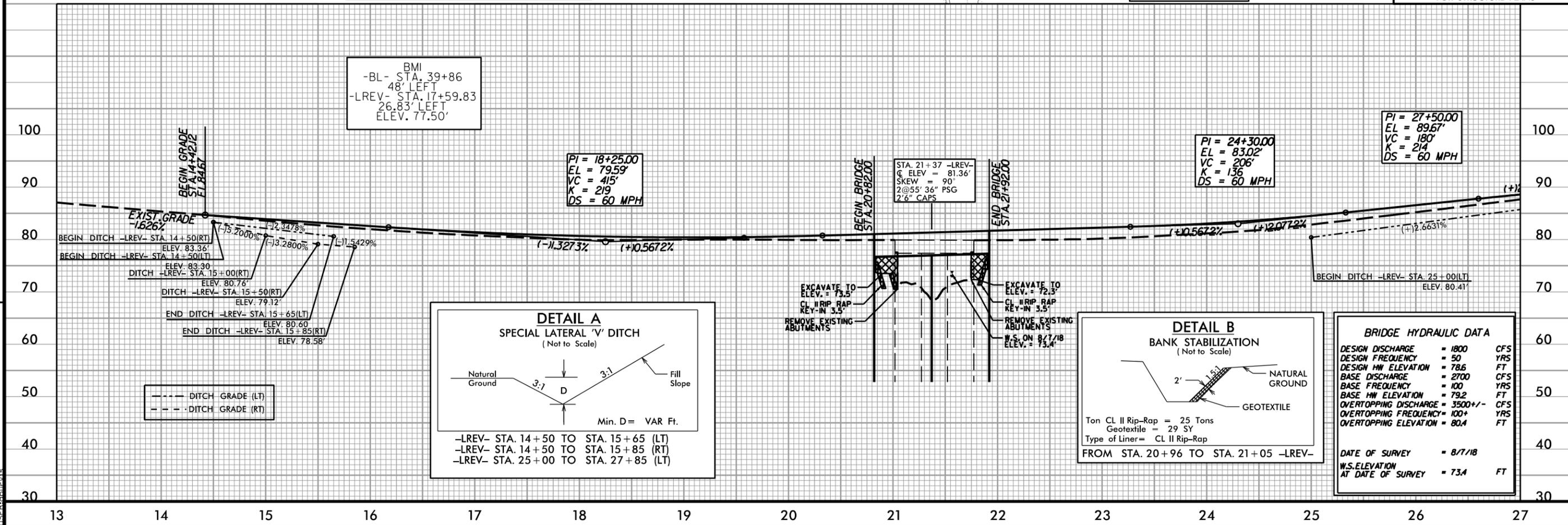
**-LREV-**

PI Sta 13+01.58	PI Sta 15+77.77	PI Sta 18+47.26
$\Delta = 0' 39' 55.5" (LT)$	$\Delta = 1' 23' 38.9" (LT)$	$\Delta = 1' 23' 38.9" (RT)$
$D = 0' 45' 50.2"$	$D = 0' 30' 58.2"$	$D = 0' 30' 58.2"$
$L = 87.0'$	$L = 270.0'$	$L = 270.0'$
$T = 43.55'$	$T = 135.05'$	$T = 135.05'$
$R = 7,500.00'$	$R = 11,000.00'$	$R = 11,000.00'$
SE = NC	SE = NC	SE = NC
DS = 60 MPH	DS = 60 MPH	DS = 60 MPH



**-LREV-**

PI Sta 27+30.06
$\Delta = 3' 29' 12.4" (RT)$
$D = 1' 08' 45.3"$
$L = 304.28'$
$T = 152.19'$
$R = 5,000.00'$
SE = 0.3
RO = SEE PLANS
DS = 60 MPH



**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 1800	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 78.6	FT
BASE DISCHARGE	= 2700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 79.2	FT
OVERTOPPING DISCHARGE	= 3500 +/-	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 80.4	FT

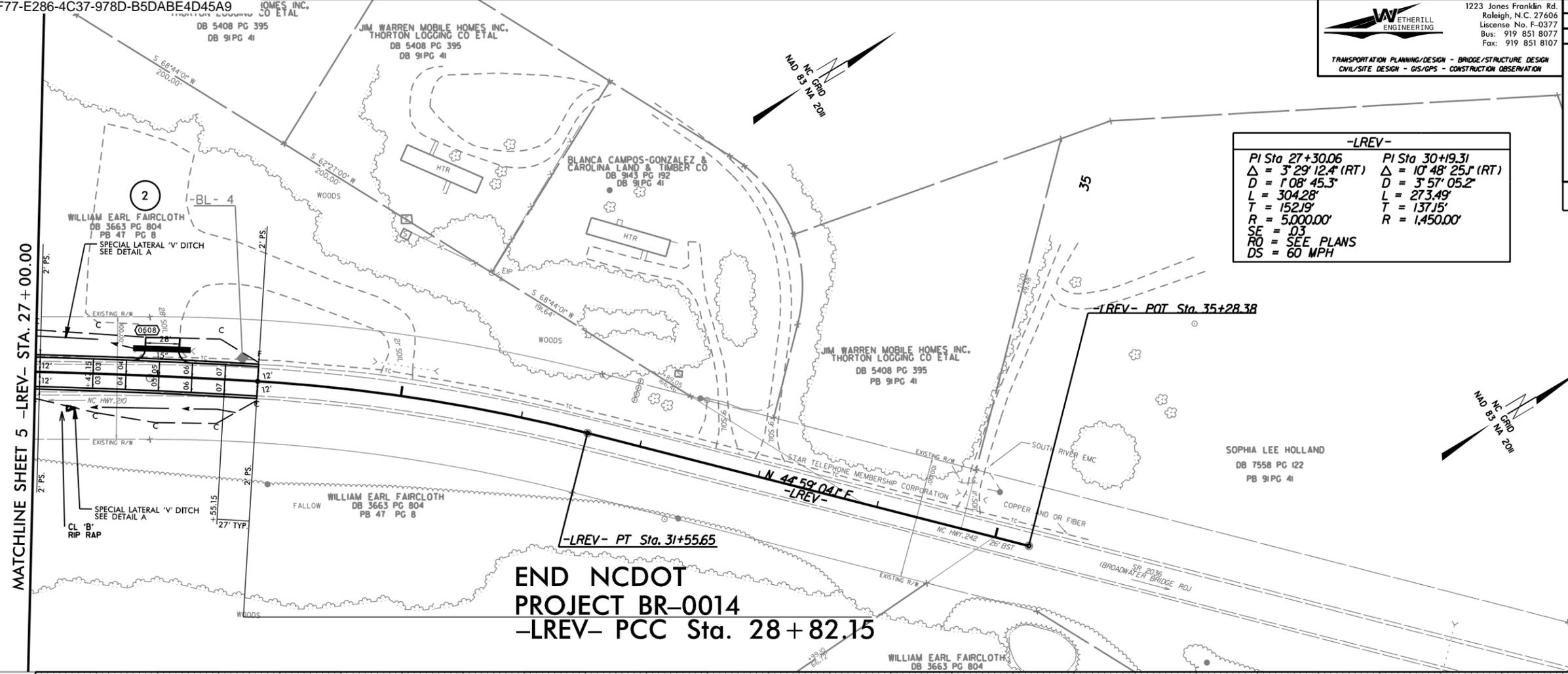
DATE OF SURVEY = 8/7/18  
W.S. ELEVATION AT DATE OF SURVEY = 73.4 FT

REVISIONS

3/1/2019  
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RSE

PROJECT REFERENCE NO. <b>BR-0014</b>	SHEET NO. <b>5</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

MATCHLINE SHEET 5 -LREV- STA. 27+00.00

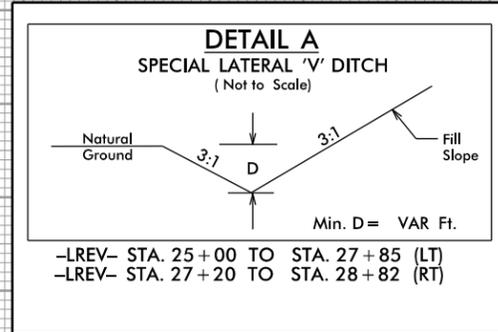
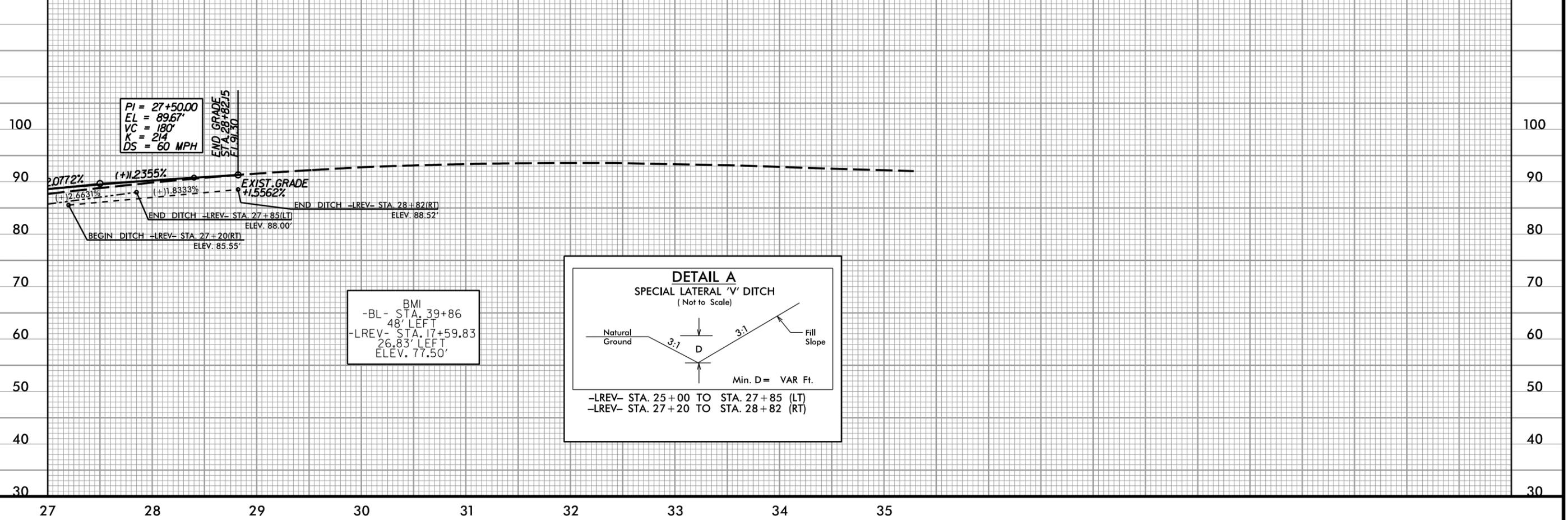


-LREV-

PI Sta 27+30.06	PI Sta 30+19.31
$\Delta = 3^{\circ} 29' 12.4''$ (RT)	$\Delta = 10^{\circ} 48' 25.1''$ (RT)
$D = 108' 45.3''$	$D = 357' 05.2''$
$L = 304.28'$	$L = 273.49'$
$T = 152.19'$	$T = 137.15'$
$R = 5,000.00'$	$R = 1,450.00'$
$SE = .03$	
$RO = SEE PLANS$	
$DS = 60$ MPH	

**END NCDOT  
PROJECT BR-0014  
-LREV- PCC Sta. 28+82.15**

SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS



BMI  
 -BL- STA. 39+86  
 48' LEFT  
 -LREV- STA. 17+59.83  
 26.83' LEFT  
 ELEV. 77.50'

REVISIONS

3/1/2019  
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 JSE

17-12-0067



## HISTORIC ARCHITECTURE AND LANDSCAPES NO SURVEY REQUIRED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

### PROJECT INFORMATION

<b>Project No:</b>	BR-0014	<b>County:</b>	Cumberland
<b>WBS No.:</b>	67014.1.1	<b>Document Type:</b>	MCC
<b>Fed. Aid No:</b>		<b>Funding:</b>	<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal
<b>Federal Permit(s):</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Permit Type(s):</b>	USACE
<b>Project Description:</b> Replace Bridge No 25 on US 242 over Beaver Dam Creek			

### SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

<b><u>Description of review activities, results, and conclusions:</u></b> Review of HPO quad maps, relevant background reports, historic designations roster, and indexes was undertaken on January 18, 2018. Based on this review there are no NR, DE, LL, SL, or SS in the Area of Potential Effects (APE). There is one property which is older than 50 years in the APE, a c.1942 house. However it does not have the level of architectural significance or integrity which would rise to National Register eligibility. No survey required.
<b><u>Why the available information provides a reliable basis for reasonably predicting that there are no unidentified significant historic architectural or landscape resources in the project area:</u></b> Using HPO GIS website and county tax data provides reliable information regarding the structures in the APE. These combined utilities are considered valid for the purposes of determining the likelihood of historic resources being present.

### SUPPORT DOCUMENTATION

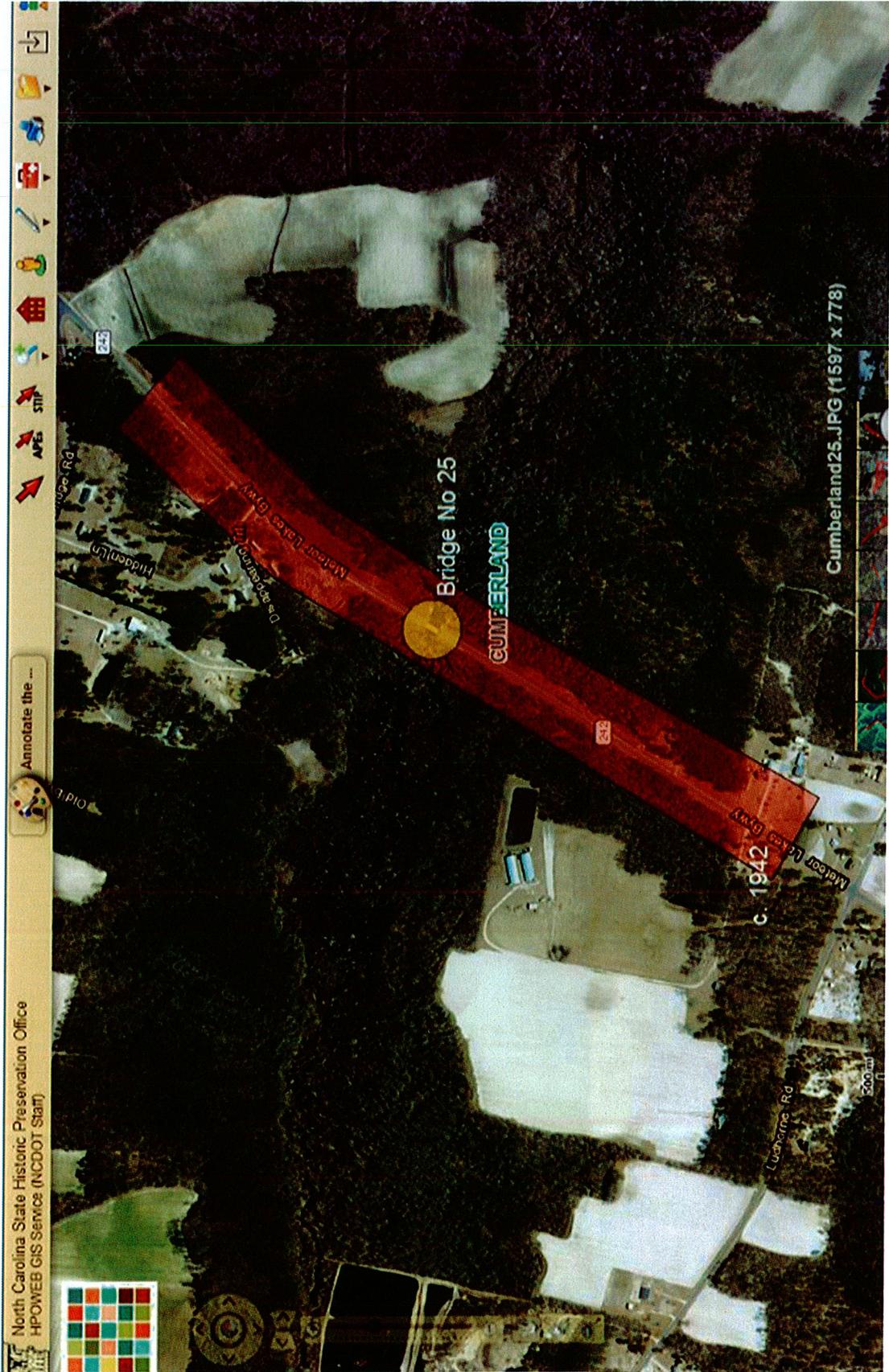
Map(s)     Previous Survey Info.     Photos     Correspondence     Design Plans

### FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- NO SURVEY REQUIRED

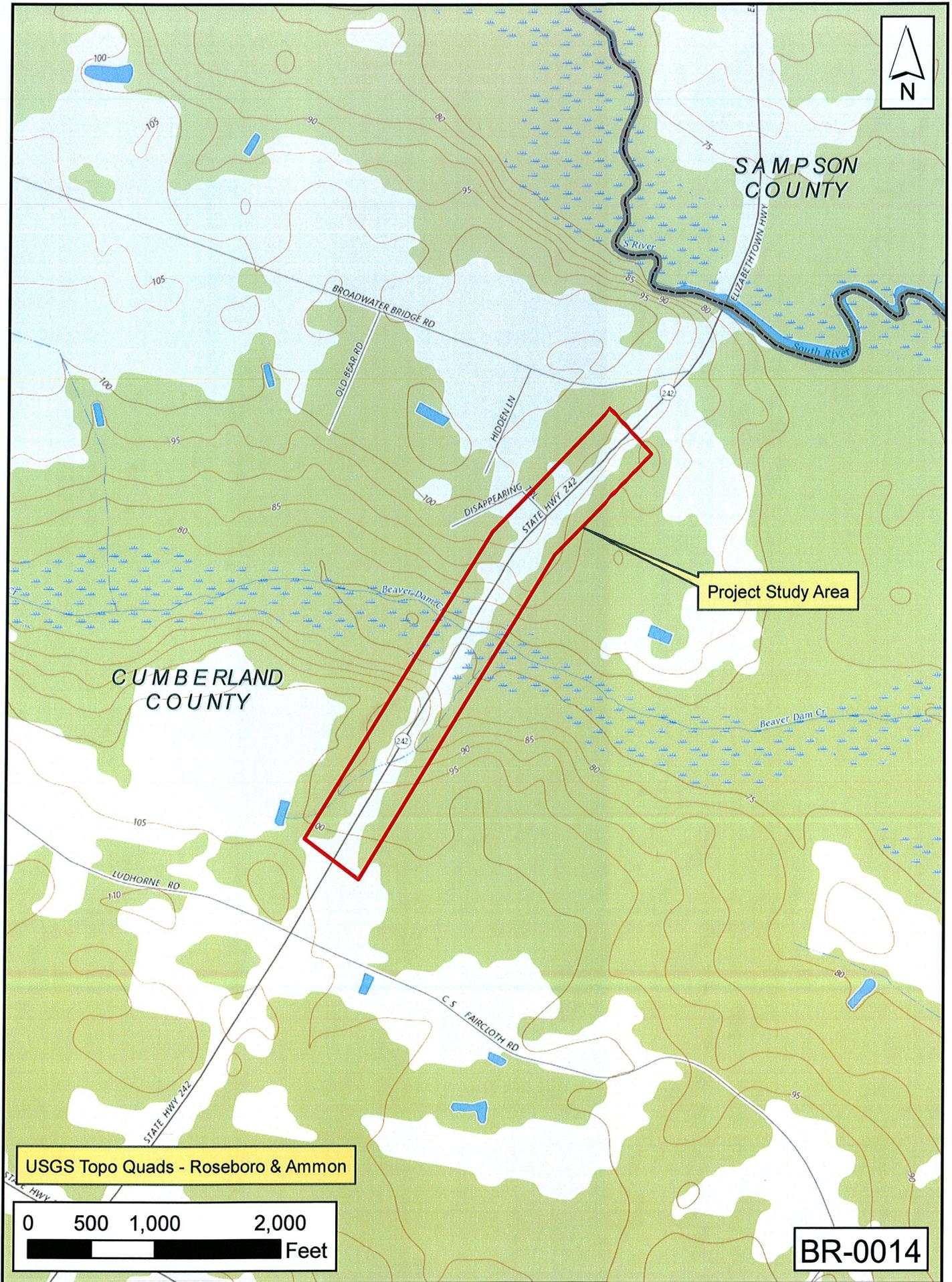
*Shelby Reap*  
\_\_\_\_\_  
NCDOT Architectural Historian

*Jan 18, 2018*  
\_\_\_\_\_  
Date





c. 1942 house



17-12-0067



## NO ARCHAEOLOGICAL SURVEY REQUIRED FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.



### PROJECT INFORMATION

*Project No:* **Br. No 0025** *County:* **Cumberland**  
*WBS No:* **67014.3.1** *Document:* **M C C**  
*F.A. No:* **N-A** *Funding:*  State  Federal  
*Federal Permit Required?*  Yes  No *Permit Type:* **tbd**

**Project Description:** NCDOT proposes to replace Bridge No. 0025 over Beaver Dam Creek in southeastern Cumberland County. This is a state funded project though it will require federal permitting, therefore, Section 106 of the National Historic Preservation Act applies.

No design mapping or conceptual alternatives were available at the time of the review. Some project notes suggest that an offsite detour under five miles may be available though may require some minor improvements at intersections for larger trucks. Wetland soils and standing water are abundant near the crossing, and efforts and impact minimization to that resource is likely. Replace in place construction at a similar alignment with an offsite detour would have the smallest new project footprint.

For purposes of this screening review, an initial Area of Potential Effects has been established that is probably much larger than anticipated earthmoving activities. This allows for multiple designs. The APE includes a length of about 3750 feet (~0.71 miles) and having a width of about 500 feet. The intent is to cover all construction areas, including cut and fill lines, easements and or new ROW, in the APE. While the entire APE is covered for this review, there is an emphasis on the immediate surroundings at the bridge and approaches. For this archaeological screening, a revised APE may be more suitable as alternatives are developed.

### SUMMARY OF ARCHAEOLOGICAL RESOURCES REVIEW:

#### **NO SURVEY REQUIRED**

##### ***Brief description of review activities, results of review, and conclusions:***

USGS mapping and aerial photography was examined (see Figures 1 and 2). Virtual drive-by using Bing and/or Google Maps was examined. Much of the APE along that corridor has been disturbed by highway construction-related earth moving on NC 242. Some areas within the APE contain standing water, while other locations have been cleared, or are wooded. Generally, there are no plowed agricultural fields. Some clearing and earthmoving has occurred adjacent to NC 242 and there are occasional driveways. A small number of nearby residences or other structures exist in the surrounding project area.

Soil type mapping and historic maps were studied. About two thirds of the project contain poorly drained and flooded soils, including those closest to the bridge (Johnston loam [JT] and Torhunta and Lynn Haven soils [TR]). Another third is better drained (Autryville loamy sand [AuA] and Candor sand [CaB] but the limited soils appear in arials and street view to have undergone modifications, like grading, that reduce the likelihood of intact, significant archaeological sites. The immediate surroundings of the bridge contains

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swampy soils and standing water. The low, wet soils are unlikely to contain archaeological sites, and the better drained soils are limited and modified.

The 1922 Cumberland County Soil Survey map (MC.029.1922u) shows NC 242 was not present in the same configuration as it is now. An earlier road did cross Beaver Dam Creek/Swamp, though was more winding, bridging the water towards the east. Historic sites, therefore are less likely away from the older road.

A visit to the Office of State Archaeology for background research showed a small number of archaeological reviews in the area, focusing along NC 242. This includes a bridge replacement over the South River, B-3152 (ER 97-8360), wedge or grading (ER 02-7956), fill work or highway work south of the bridge that received "no comment" from OSA (ER 99-8023). The similarity between the very nearby bridge replacement over the South River reviewed by the Office of State Archaeology around 1999 and the current project is strong. OSA recommended no archaeological survey, saying that bridge construction was unlikely to disturb intact, significant cultural resources, and by comparison, would probably make the same comments for the current bridge replacement project.

Few archaeological sites are documented nearby, though 31Cd24 falls within the larger study area that is currently used as an APE. The unassessed site, recorded by UNC-CH, is Native American, though no artifacts or further description was available. It appears to be overlapping the location of a structure on USGS mapping which is likely removed or otherwise graded and filled, now, probably destroyed.

No obvious cemeteries were observed on USGS mapping, historic maps, aerial photography or virtual drive by viewing. The GIS-based cemetery data managed by NCDOT archaeologist, Paul Mohler, likewise shows no known cemeteries at the APE.

The APE includes the area of bridge construction at a creek or swamp crossing with water along the roadway for some distance away from the bridge. A large APE offers several design options, though a simple replace in place alternative may be likely. An offsite detour is likely. No archaeological survey is recommended.

#### SUPPORT DOCUMENTATION

See attached:  Map(s)     Previous Survey Info     Photos     Correspondence  
 Photocopy of County Survey Notes    Other:

#### FINDING BY NCDOT ARCHAEOLOGIST – *NO SURVEY REQUIRED*



NCDOT ARCHAEOLOGIST

2/28/2018

Date

17-12-0067

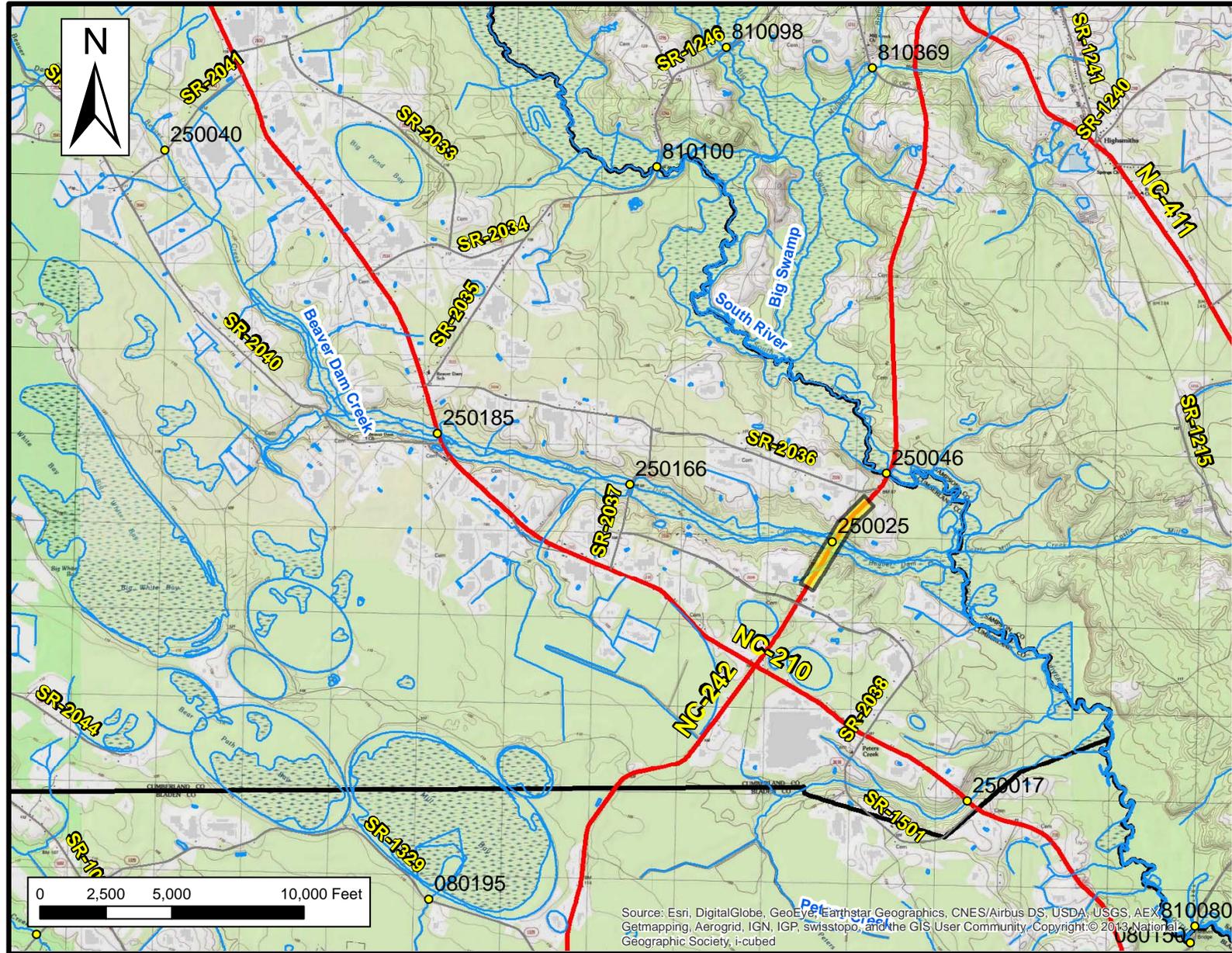


Figure 1. USGS mapping (Roseboro) showing the general project location in southeastern Cumberland County. The APE is highlighted in yellow. A built-up NC 242 crosses swampy terrain near Bridge No. 25.

"NO ARCHAEOLOGICAL SURVEY REQUIRED" form for the Amended Minor Transportation Projects as Qualified in the 2015 Programmatic Agreement.

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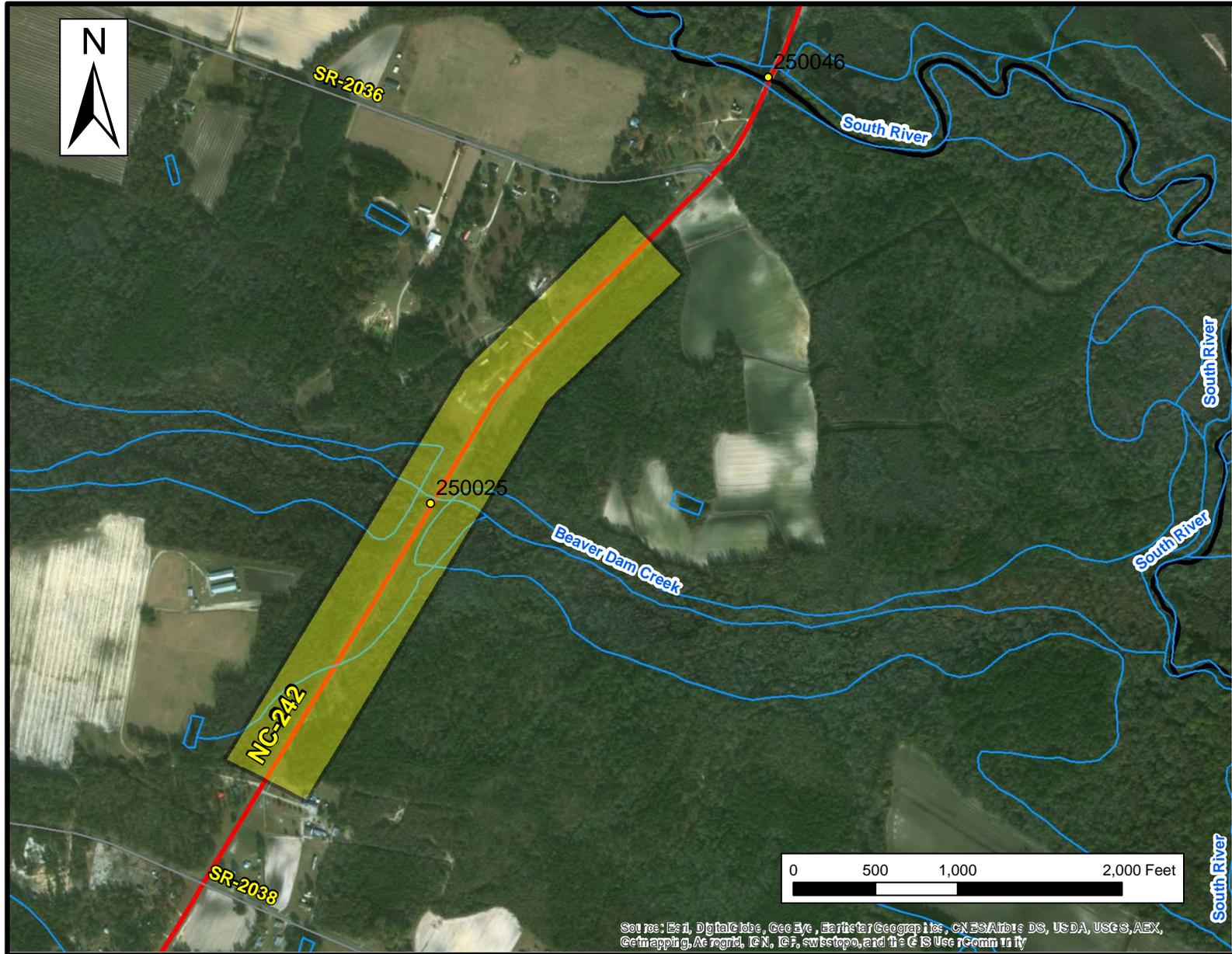


Figure 2. Aerial photograph of NC 242, Bridge No. 25, over Beaver Dam Creek and Swamp. The Area of Potential Effects and study area for the bridge replacement is approximated in yellow though actual impacts may be smaller in scale.